

# Measuring Social Restoration Performance of Public Psychiatric Hospitals

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CURRENT INTEREST in assessing the performance of psychiatric hospitals is linked with the widespread conviction that, in expending their energies in day-to-day operations, social organizations may fail to attain the efficiency expected of them. A corollary belief is that systematic observation of such organizations may lead to recommendations for improving their performance.

At first sight it may appear necessary to use radically different methods of evaluating organizations with such diverse purposes as education, national defense, health and welfare, and industrial production. However, with the development of formal systems of operations research, logistics analysis, and management science, certain common dimensions of analysis have been found useful in assessing different types of social organization. One such dimension is organizational goals.

To use a goal orientation in appraising social organizations, it is necessary to determine the pattern of goals during a given period of operation, to define each goal, and to select the best available measures of organizational results to reflect effectiveness in the attainment of each goal.

## Medical Audit Plan

The Medical Audit Plan for Psychiatric Hospitals, a research program designed to develop a method for appraising the effectiveness of public psychiatric hospitals, is being readied for application in a series of hospitals. The staff of the plan has been working to derive a set of goals that will represent the objectives of public psychiatric hospitals in our culture.

Results of a nationwide survey indicate that, in the opinion of both the professional and lay public, social restoration and care of patients, protection of patients and public, education and training, research, and effective administration are prominent purposes in these institutions. This paper deals with social restoration, an important dimension in evaluating hospital performance.

To measure the social restoration performance of public psychiatric hospitals, it was necessary first to define social restoration in terms of hospital-patient events and then to develop a workable system for recording and measuring these events so that the procedure could be tested in a series of hospitals. If the system proved practicable, a rudimentary program for estimating social restoration performance would be formalized.

If the formal program proves to be applicable in public psychiatric hospitals, it could be the "foot in the doorway" to hospital evaluation, making it possible to catalog differences in treatment programs, staff patterns, patient

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populations, structural features, and so on, in a series of public psychiatric hospitals, and to learn which hospital characteristics occur most frequently in combination with "satisfactory" social restoration results. A system of empirically based standards for the operation of such institutions could then be described in terms of social restoration. Other goals could be treated similarly.

### **Definition of Social Restoration**

The principal purpose of the psychiatric hospital is often defined as the successful return of patients to the community. What, however, is a "successful return"? Is return to the community successful if the patient leaves the hospital by escape or unauthorized absence, if his posthospital behavior is severely disorganized, if he is subsequently readmitted or admitted to another institution, if he spends 10 years in the hospital before being discharged, or if he dies within a week after discharge? The definition we seek must establish the limits of hospital responsibility in the events and behavior which occur during and after the patient's release from the hospital. It must also conform to the basic principles of psychiatric hospital operation, so that the events and behavior observed have meaning and application in a large number of hospital settings.

The medical audit plan defines the social restoration goal of public psychiatric hospitals as maximal success in authorizing the release of patients who will not only remain in the community but also will make a favorable community adjustment.

The three levels of social restoration may be expressed as follows:

- To what extent is the hospital authorizing the return of patients to the community for the purpose of establishing extrahospital residence? With some minor reservations, this is akin to a "discharge rate" and may be designated level 1, the first and most rudimentary level of social restoration.

- To what extent do patients whose release from the hospital is authorized remain in the community? Quantification of this level would represent a "readmission rate." Adjustments must be made, however, for patients dying in the community after release from the

hospital, as well as for patients subsequently admitted to other institutions. Level 2 of social restoration represents the capacity of the hospital to discharge patients who will remain alive in the community.

- To what extent is the hospital authorizing release to the community of patients who prove capable of a satisfactory extrahospital adaptation? The nature of the patient's adjustment to the community is the subject of level 3. No familiar statistic is applied to this level, which reflects the limited effort of public psychiatric hospitals in the followup of patients.

Before formulating a program for measuring the three levels of social restoration, two ancillary concepts are needed, the patient cohort and the description of the time intervals comprising the total study period.

### **Patient Cohorts**

The study of hospital effectiveness in terms of social restoration focuses on patients departing from the hospital. Whether the hospital administrator is interested in the success of his hospital in releasing a selected class of patients, such as schizophrenics, married females, or alcoholics, or in the movement of all patients from the hospital to the community, the essence of the problem is identification of the reservoir of patients available for release. Cohorts of patients, made up of groups with distinctive traits or characteristics, such as those in a particular diagnostic rubric or within a prescribed age range, are a useful concept for this purpose (1).

In this project, two cohorts are used for measuring the social restoration performance of psychiatric hospitals: an admission cohort, assembled by assigning to it all patients admitted during a given time interval; and a resident cohort, made up of all patients in the hospital the day the research program is installed. By classifying patients in the resident cohort according to length of hospital stay, a series of second-order resident cohorts will be formed. In this way, a 1-year resident cohort as well as 2-year and longer cohorts will be identified in each hospital.

Interest in the admission and resident cohorts in each hospital centers on various forms of patient movement, both within and from the

hospital, as well as on the type of adjustment in the community demonstrated by patients discharged from both cohorts.

Since the rate of discharge for newly admitted patients is generally greater than for patients who have been in residence for a protracted period of time, an estimate of hospital success in the restoration of all types of patients is important. To use only recently admitted patients for estimating hospital success provides only a partial picture. The research program is designed to discover features in the hospital system which vary with social restoration performance. If the estimate of social restoration is based on a limited portion of the hospital population, such as a resident or an admission cohort, it would be necessary to decide what portion of hospital resources were expended in serving the specified cohort. Accurate apportionment of this expenditure in retrospect would be an extremely delicate task. The use of two cohorts provides a global picture of hospital social restoration capacity as well as one which should prove more rigorous and economical in operation.

### Time Schedules

The study of a hospital's social restoration functioning may be divided into three time phases: collection, observation, and followup.

- The collection phase, necessary only for the admission cohort, is the period during which this cohort is assembled. It occupies the first 183 days, or 6 months, of project work in the cooperating hospitals. The admission cohort includes all patients entering the hospital during this interval except patients dying within 48 hours of admission.

- During the observation phase, each patient in both the admission and resident cohorts will be followed for a maximum of 274 days, or 9 months, to determine what happens to him (death in the hospital, transfer, discharge, and so on). For all resident cohort patients, the observation phase begins on the day the study is installed in the hospital; for admission cohort patients, on the day of admission during the collection phase.

The first day of a patient's hospitalization is symbolized by  $P(A)1$  ( $A$  refers to admission). Each day of his hospital stay is simi-

larly symbolized; for example, his 100th day of hospitalization is represented by  $P(A)100$ .

For all resident patients,  $P(A)1$  is the first day of the study; it is as though all of these patients were admitted on the first day of project work in the hospital. For both resident and admission patients the observation phase extends, potentially, from  $P(A)1$  to  $P(A)274$ . The observation phase is terminated whenever a change, such as death, occurs in any patient's status. Nine months, or 274 days, is merely the upper limit or time boundary for this phase.

- In the followup phase, for both the admission and resident cohorts, each patient placed on convalescent leave or given an authorized discharge by  $P(A)274$  will be followed in the community for a period up to 9 months after release.

If we let  $P(R)1$  ( $R$  stands for release) represent a patient's first day in the community, then the followup phase for him can extend to  $P(R)274$  if he continues to adjust at some level throughout the 9 months. The followup phase closes for patients who are reinstitutionalized, or die, before  $P(R)274$ . It would be interesting to observe reinstitutionalized patients throughout the followup period, but this study is planned so that observation is discontinued when a significant change in a patient's status occurs.

The three time phases described are fundamentally "time samples" of on-going hospital-patient events. The time intervals are admittedly arbitrary, but limits must be imposed to measure hospital performance. The scheme outlined requires 2 years to carry the three phases to their prescribed time boundaries.

### Measuring Social Restoration

Social restoration may be measured at three levels: by the number of patients who return to the community, by the length of their stay in the community, and by the posthospital adjustment of those remaining in the community.

#### *Level 1*

In level 1 of social restoration, the problem is to determine how many members of a given cohort are returned to the community during the observation phase of the study. To dis-

cover what happens to patients during this phase, patients in the two cohorts were subdivided into seven classes, as follows:

- (1)  $d$ , died in the hospital by  $P(A)274$ .
- (2)  $t$ , transferred from the hospital by  $P(A)274$ .
- (3)  $r_{AMA}$ , released "against medical advice" by  $P(A)274$ .
- (4)  $r_{elope}$ , released via elopement (escape or unauthorized absence) from the hospital by  $P(A)274$ .
- (5)  $r_{MHB}$ , released with "maximum hospital benefit" by  $P(A)274$ .
- (6)  $r_v$ , placed on trial visit, sometimes termed "convalescent leave" or "parole," but not including "day care" or "night care," by  $P(A)274$ .

(7)  $h$ , patients who had none of the above experiences but who remained in the hospital throughout the observation phase, although they may have been granted short leaves of absence, such as weekend passes.

Classes 1-6 include cohort patients discharged or released from the hospital, using the terms "discharge" and "release" in a broad sense. Classes 5 and 6 differ from classes 1-4 in that patients released with maximum hospital benefit and patients placed on trial visit are released because the hospital has decided they are "ready" to return to the community, at least on a trial basis. These hospital-approved releases are designated as  $R$ . Therefore  $R$  represents the number of cohort patients discharged with maximum hospital benefit or placed on trial visit before  $P(A)274$ .

Classes 1-4 include patients withdrawn from a cohort by means other than a hospital-approved release.  $W$  represents the number of these patients in a cohort.

To summarize, if  $N$  represents the total number of patients in a cohort, then  $N = R + W + h$ . A patient can be classified only according to the first event in his hospital experience after he enters the study. For example, a patient discharged with maximum hospital benefit is classified as  $r_{MHB}$  (or  $R$ ) even if he is readmitted to the hospital a few days following his discharge.

These patient movement categories were developed for the medical audit plan research program and represent the minimum number

of categories needed to appraise the social restoration performance of State hospitals. They do not conform to the category structure of any State hospital system but resemble most closely the classification instituted by the mental hospital statisticians participating in the work of the Model Reporting Area for Mental Hospital Statistics (2). While the categories have been reduced to a minimum, there will be settings where certain categories have no utility. This will be especially true for patients released against medical advice, since a number of States do not use the designation  $r_{AMA}$  for patients who leave the hospital on their own insistence. As with any classification procedure, the essential requirement is that category definitions be followed faithfully by each cooperating hospital.

*Discharge rate.* The extent to which a hospital gives its patients an opportunity to return to the community can be measured by two basic indices, a discharge rate and a length-of-stay measure. A discharge rate constitutes our primary level 1 index.

The term "hospital-approved release rate" is a more realistic and meaningful measurement of hospital functioning at level 1 of social restoration than the term "discharge rate" because it is based on cohort patients whose release is approved by the hospital. It also avoids "inflation" of the usual discharge rate, which happens when "patients discharged from the hospital" include discharges via death, transfer, and elopement.

Another advantage of the "hospital-approved release" concept is its inclusion of patients placed on trial visit. Although these patients remain on the hospital books and are technically not discharged, they represent "releases to the community," and should be included in any measure of the social restoration effectiveness of a hospital. In many respects, the major difference between the status of patients discharged as having received maximum hospital benefit and patients placed on trial visit is administrative definition. By and large, both classes of patients are released into the community because the hospital believes they are "ready" to attempt to adjust to community living.

The discharge rate is usually computed by

dividing the number of patients available for release during a given period of time by the total number of patients in the cohort:

$$\frac{\text{Discharges}}{\text{Discharges} + \text{nondischarges}} \quad [1]$$

(or total number of patients in the cohort)

If the concept of "hospital-approved release" is used, this ratio must be refined, so that it would read

$$\frac{\text{Authorized discharges}}{\text{Authorized discharges} + \text{nonauthorized discharges} + \text{nondischarges}} \quad [2]$$

(or total number of patients in the cohort)

If the symbols  $R$ ,  $W$ , and  $h$  are substituted in ratio 2, it would read

$$\frac{R}{R+W+h} \text{ or } \frac{R}{N} \quad [3]$$

Ratio 3 contains yet another pitfall. Patients who die, transfer, or elope from the hospital ( $W$ 's) are removed from the cohort and are not available for authorized discharge throughout the entire observation phase of the study. Inclusion of these patients in the denominator of the index results in a misleadingly low index of hospital performance. A correction factor is needed to modify the denominator so that it will more accurately represent the number of cohort members with an equivalent "availability" or exposure time for authorized discharge. When the exact date of departure of  $W$  patients is unknown or difficult to obtain, it is customary to assume that they are leaving the cohort uniformly throughout the observation period. This is tantamount to saying that  $W$  patients are spending, on the average, one-half of the observation phase in the hospital or that there are, in another sense, only one-half as many patients in the  $W$  category as there are in fact. The usual corrected denominator is on the order of

$$N - \frac{1}{2}W \quad [4]$$

However, since the exact date of withdrawal of  $W$  patients will be recorded for each patient in the study cohorts, assumption of a uniform rate of departure is not necessary. The sum of the days spent in the hospital by each patient withdrawn from the study divided by the num-

ber of such patients will produce an average period of exposure to hospital-approved release for patients leaving the hospital by means other than authorized discharge. Dividing the average exposure period by 274, the number of days in the observation phase, will give the average proportion of the observation phase which the  $W$  patients spent in the hospital before withdrawal from the cohort. Subtracting this proportion from unity will give the average proportion of the observation phase during which the  $W$ 's were not exposed to the risk of a hospital-approved release. Symbolically, this correction would be expressed as

$$C = 1 - \frac{\text{Sum } Li}{274W} \quad [5]$$

The only unfamiliar term is  $Li$ , which represents the number of days a withdrawn patient spends in the hospital before release. Multiplying  $C$  by  $W$  will yield the number of patients who were not available for release due to their withdrawal from the cohort. If the correction is integrated into index 3, the refined discharge rate, symbolized by  $1a$ , becomes

$$1a = \frac{R}{N - (C \times W)} \quad [6]$$

The denominator represents the number of cohort members who were in the hospital for an approximately equal time during the observation phase, and the index yields that proportion of these patients given hospital-approved releases ( $\beta$ ). This proportion may be multiplied by 100 if a percentage is desired.

Table 1 shows hypothetical data on movement of patients and the computation of level 1 indices for each of two hospitals. Over a given length of time hospital A released 35 percent of the cohort patients who had spent equal periods of time in the hospital, while hospital B released 49 percent, or nearly half, of the cohort patients with equal exposures to hospital-approved release. The level 1 index would be computed for both admission and resident cohorts; thus, a hospital would be characterized by several indices.

*Length of hospitalization.* The primary level 1 index was developed in terms of the number of patients released into the community by

a hospital during a given period of time and is essentially a refined release rate. A somewhat different way of considering social restoration at level 1 is to ask, "How long are patients kept in the hospital?" The answer to this question involves a length-of-stay measure.

The secondary level 1 measure is merely the average length of stay of  $R$  and  $h$  cohort patients during the observation phase of the study. In the secondary level 1 approach, measurement is restricted to  $R$  and  $h$  patients. Inclusion of patients withdrawn from the cohort for reasons other than hospital-approved release would give a lower, and often less meaningful, result. For example, if a given cohort lost many of its members by death during the observation phase, a low mean length of stay would result.

If we let  $1b$  represent the secondary level 1 measure, then

$$1b = \frac{\text{Sum } Li(R, h)}{R + h} \quad [7]$$

The mean length of stay is computed for the admission cohort of a hospital and also for each resident cohort. For the resident cohort, the measure does not include the time spent in the hospital prior to the start of the study. This

**Table 1. Calculation of primary level 1 index based on hypothetical data**

	Hospital A	Hospital B
(1) $N$ (total number in cohort) . . .	360	250
(2) $r_{MHB}$ ("maximum hospital benefit" discharges) . . . . .	22	26
(3) $r_v$ (trial visits) . . . . .	94	88
(4) $R = (2) + (3)$ . . . . .	116	114
(5) $d$ (deaths) . . . . .	18	14
(6) $r_{AMA}$ ("against medical advice" discharges) . . . . .	16	10
(7) $t$ (transfers) . . . . .	14	10
(8) $r_{elope}$ (elopements) . . . . .	7	5
(9) $W = (5) + (6) + (7) + (8)$ . . . . .	55	39
(10) $h = (1) - (4) - (9)$ . . . . .	189	97
(11) Average number of days in hospital for $W$ 's . . . . .	120	155
(12) $C = 1 - \frac{(11)}{274}$ . . . . .	0.56	0.43
(13) $1a = \frac{R}{N - (C)W} = \frac{(4)}{(1) - (12) \times (9)}$ . . . . .	.35	.49

is a legitimate limitation because operation of the hospital system during the observation phase is the subject of the study. Any inferences about the relationship between hospital programs and hospital results will perforce be limited to the period which coincides with the observation phase. However, for purposes other than this research program, it might be more useful to calculate the average length of total hospital stay for the entire body of resident patients.

Collection of data for level 1 poses no particular problem other than stratifying the resident cohort by length of hospital stay and recording certain basic demographic information on these patients before the day the study is officially launched. From this point on, during the observation phase, it will be necessary to record the exact dates of admission and release for all patients in both admission and resident cohorts and to obtain the same demographic data on the admission cohort as on the resident cohort.

#### Level 2

The extent to which a hospital gives its patients a chance to return to the community is only part of the social restoration story. Patients released from the hospital have not necessarily been "socially restored"; they have only been given the opportunity to achieve this status. Followup activities, to learn what happens to patients released into the community, are essential for evaluating the "true effect" of hospitalization. Therefore, all cohort patients given a hospital-approved release ( $r_{MHB}$  or  $r_v$ ) within the observation phase of the study will be followed in the community up to 9 months, or 274 days, after their release.

These  $R$  patients may be subdivided into smaller groups according to what happens to them following their release into the community. For example, they may die; they may return to institutionalized status, to the same or a different psychiatric inpatient facility or to a prison, a nursing home, or a home for the aged; or they may remain in the community throughout the followup phase of the study. This breakdown is valid for both the trial visit and maximum hospital benefit patients of both admission and resident cohorts.

The  $R$  group of a cohort will be broken down as follows:

(1)  $Rd$ , number of  $R$  patients who die in the community by  $P(R)274$ .

(2)  $Ri$ , number of  $R$  patients reinstitutionalized by  $P(R)274$ .

(3)  $Rs$ , number of  $R$  patients remaining in the community throughout the followup phase of the study.

As in the observation phase of the study, a patient is classified only once, according to his first hospital experience.

*Readmission rate.* The primary level 2 index is based on the question, "To what extent do patients whose release from the hospital is approved remain alive in the community?" This suggests use of a readmission rate analogous to the release rate developed for level 1, based on  $Ri$ , the number of  $R$  individuals of a cohort reinstitutionalized during the followup phase.

The primary level 2 index is

$$2a = \frac{Ri}{R - (C \times Rd)} \quad [8]$$

where  $C$  in the denominator is a correction term. This correction is analogous to that used in the level 1 index and is necessary because some individuals will die in the community and thus will be withdrawn from the  $R$  group. The treatment of the  $Rd$  cases is similar to the treatment of the  $W$ 's in level 1. The level 2 correction term is computed by dividing the average length of community stay, prior to death of the  $Rd$  individuals, by 274, the maximum potential duration of the followup phase, and then subtracting this result from unity.

The denominator of the primary level 2 index represents the number of  $R$  individuals in a cohort who had "equal exposure to the risk of reinstitutionalization." This index is computed for the admission cohort of a hospital and for each resident cohort. Subsequent admissions of cohort members to other institutions, as well as readmissions to the study hospitals, are recorded.

The computation of the level 2 index, symbolized by  $2a$ , may be illustrated by an example based on hypothetical data from two hypothetical hospitals (table 2).

For hospital A, 26 percent of the released

patients who had "equal exposure to the risk of reinstitutionalization" had to return to an institution during the followup period. The figure for hospital B is 39 percent. Unlike the level 1 index, a low level 2 value represents "better hospital performance."

Although hospital B was giving more of its admission cohort patients a chance to return to the community than was hospital A, relatively fewer of hospital A's patients had to be reinstitutionalized during the followup phase. Therefore, it would be misleading to conclude, on the basis of the level 1 index, that hospital B was doing a better job than hospital A in "socially restoring" its patients.

*Length of community stay.* As in the secondary level 1 measure, the question "How long do those cohort patients who are released from the hospital remain in the community?" leads to a measurement of length of stay in the community.

This measure is simply the average number of days spent in the community by reinstitutionalized and authorized release members of a cohort during the followup phase of the study. The cohort members who died in the community are omitted from this computation because their inclusion would lower the value produced. This value might merely reflect the fact that a hospital has released a large

**Table 2. Calculation of primary level 2 index based on hypothetical data**

	Hospital A	Hospital B
(1) $R$ (number of hospital-approved releases)-----	116	114
(2) $Rd$ (number of released patients dying in the community during followup phase)-----	8	14
(3) $Ri$ (number of released patients who were reinstitutionalized during followup phase)-----	28	40
(4) $Rs$ (number of released patients who remained in the community throughout the followup phase)-----	80	60
(5) Average number of days in community for $Rd$ patients-----	37	55
(6) $C = 1 - \frac{(5)}{274}$	0.86	0.80
(7) $2a = \frac{Ri}{R - (C \times Rd)} = \frac{(3)}{(1 - (6) \times (2))}$	.26	.39

number of elderly patients who died soon after their release and thus had no chance to remain in the community for the entire followup period or to be readmitted to the hospital. The secondary level 2 measure is computed for both the admission and resident cohorts of a hospital, as follows:

If  $2b$  symbolizes the secondary level 2 measure, then

$$2b = \frac{\text{Sum } Lc(Ri, Rs)}{Ri + Rs} \quad [9]$$

where the numerator represents the number of days spent in the community by the reinstitutionalized and authorized release cohort members ( $Lc$ =days in community) during the followup phase of the study, and the denominator represents the number of members of these cohorts.

Records of readmissions of previously released members of the patient cohorts are obtained from the daily roster of admissions in each cooperating hospital. The procedure for recording admissions to other institutions as well as deaths in the community is described under level 3.

### *Level 3*

Measurement of the social restoration performance of hospitals in terms of the number of patients given an opportunity to resume community living and of the number of these patients who remain in the community provide valuable clues to hospital effectiveness. These measures, however, leave a number of important questions unanswered. For example, "Is hospital performance successful if discharged patients remain in the community because they or their families balk at returning them to the hospital or because the patients or their families find readmission procedures too complex?"

The most direct measure of hospital success and the measure which furnishes a qualitative estimate of the social restoration effectiveness of the hospital is the posthospital adjustment of patients in the community. To know how well patients adjust after they leave the hospital, however, is not enough. Information on their prehospital experience is needed as a baseline for evaluating their posthospital adjustment. With reliable information on both

prehospital and posthospital adjustment, inferences can be drawn about the impact of the hospital experience on patients. In this way, patients serve as their own controls, and the role of the hospital in contributing to changes in the community adjustment of patient cohorts is evaluated.

At this point in the program, a number of decisions had to be made. Since it is more difficult and expensive to collect information on the community adjustment of patients than to record their movement in a hospital setting, the project staff adopted two basic tenets: (a) that community residents familiar with the patient and his adjustment, rather than the patient himself, serve as sources of information; and (b) that the information sought have to do with broad "areas of social living" rather than with symptom portraits or mental status examinations. Patients most often enter a public psychiatric facility because of public or legal pressure rather than by self-determination, and such pressure becomes necessary, in the main, when the patient's functioning in broad areas of social adaptation shows malignant trends, either in terms of harming himself or of harming others.

Considerable pilot work has been done with "community informant questionnaires," which were mailed to informants in the community at the time of the patient's admission to the hospital and again 3 months after he was discharged. The names and addresses of informants were furnished by the patient. This procedure is relatively inexpensive, it can be handled by clerical staff, and it requires no travel funds. The 3-month interval can be altered or repeated as desired. With patients in the resident cohort who have been in the hospital more than 1 year, only posthospital information was requested.

In one hospital, nearly 80 percent of the questionnaires requesting information about the prehospital adjustment of patients were completed and returned by community informants. For questionnaires requesting information on posthospital adjustment, the return rate was only about 70 percent.

The community informant questionnaires are so designed that they can also be used as interviewing schedules. The initial questions

concern identifying characteristics of the informant. The questionnaire is also used to determine whether the patient has died in the community or whether he was institutionalized again since his release from the hospital. The latter information will be used to supplement the data collected at the hospital for level 2 of social restoration. The majority of the remaining questions elicit information in four areas of social adjustment: social and family relations, social productivity (work, school, and other socially useful behavior), self-management (personal care and conduct), and anti-social behavior. Some questions ask the informant to indicate whether the patient has been engaged in a particular activity, such as work, and if so, to what extent. Other questions are structured in terms of comparison of the patient's behavior with the behavior of his peers in the community; still others ask the informant to indicate the patient's behavior by means of simple scales. Ideally, the same informants should complete both the pre-hospital and posthospital forms for a patient, but pragmatic considerations may force us to depart from this ideal.

There are a number of problems in the questionnaire approach. One concerns the appraisal of prehospital adjustment. Is hospital performance best measured by using as a baseline the patient's adjustment just prior to admission to the hospital or should the baseline be the point of most profound social disorganization, a point which may occur at a time other than just prior to admission to an institution? For this study, information was sought on the patient's adjustment during the 3-month period prior to his hospitalization. This avoids asking the informant to decide when the patient was most disturbed and has the additional advantage of providing information about him during the period immediately preceding the hospital's "taking over" his treatment.

Furthermore, the questions about prehospital adjustment must be parallel, or equivalent in content, to the questions asked during the posthospital followup program. For example, a question about work adjustment is designed to obtain information regarding the patient's work history during the 3-month

period prior to his admission to the hospital and during a 9-month period following his release.

Other methods of gathering community adjustment information are being readied for pilot study. The method or methods which provide the most accurate information at the least cost per unit will be used in the full-scale research.

For members of the admission cohort, level 3 of social restoration may be measured by computing for each adjustment area the proportion of released patients who display a pre-hospital-posthospital improvement in social adjustment. Thus, the social productivity of these patients can be classified on the basis of information from prehospital questionnaires. Using a scoring scheme developed by the medical audit staff, the entire admission cohort of a hospital can be classified into five categories, ranging from high adjustment to low adjustment.

The information obtained from the post-hospital questionnaires for admission cohort patients released during the observation phase of the study will be similarly classified. The number of patients released with hospital approval whose posthospital adjustment classification is higher than their prehospital adjustment classification can then be counted, and a hospital level 3 score for social productivity can be computed by using the formula

$$\frac{R(s) \text{ improved}}{R(s)} \quad [10]$$

where  $R(s)$  denotes the number of individuals in the group released with hospital approval who remain adjusting in the community at a specified time after release, and the numerator represents the number of such individuals who show a prehospital-posthospital improvement in social productivity. A similar proportion will be computed for each of the other three social adjustment areas.

Since prehospital information probably will not be obtained for resident cohort members, we must be content with a proportion such as

$$\frac{R(s)_{1,2}}{R(s)} \quad [11]$$

where the numerator represents the number of  $R(s)$  individuals classified on the basis of post-hospital information in the two top categories of an adjustment area. For the resident cohort, we cannot speak definitively about improvement in social adjustment.

### Summary

Most people associated with psychiatric hospital work are eager to improve their performance. The usual dilemma is to know how. The Medical Audit Plan for Psychiatric Hospitals, a research program being carried on at the Veterans Administration Hospital, Perry Point, Md., is developing a set of goals for public psychiatric hospitals. The program is also attempting to establish measuring rods for determining how completely hospitals have achieved their objectives and to uncover the facets of hospital structure or programing which influence the degree to which objectives are achieved.

This paper discusses one objective of the program, social restoration, defines this objective, and describes a system for recording relevant

hospital-patient events. It also considers characteristics for measuring these events, proposes indices for estimating hospital restoration results, and suggests similar treatment of other hospital objectives.

Application of this methodology is being planned for a series of State hospitals. If the approach proves practicable, and if it yields meaningful information about hospital organization, it should be possible to make program adjustments in psychiatric hospitals with the hope of improving end results of the hospital effort.

### REFERENCES

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## Psychiatric Case Register

The first complete psychiatric case register for a State has been established by the Maryland State Department of Mental Hygiene in conjunction with the Maryland State Department of Health and the National Institute of Mental Health of the Public Health Service. The register will contain essential data on all Maryland residents who receive psychiatric treatment in hospitals and clinics.

By providing a running record of all psychiatric services received by each individual, the register will permit analysis of the effectiveness of these services for various categories of patients. All information on patients will be kept in strict confidence and used only for research purposes. The register also will make it possible to compute, for the first time, an unduplicated count of Maryland residents receiving psychiatric services.

The mental hygiene department is responsible for all psychiatric hospital statistics. As part of this project, it will assume full responsibility for all psychiatric clinic statistics and will shortly begin releasing regular monthly and annual reports. However, most psychiatric clinics will remain under the supervision of the State health department.